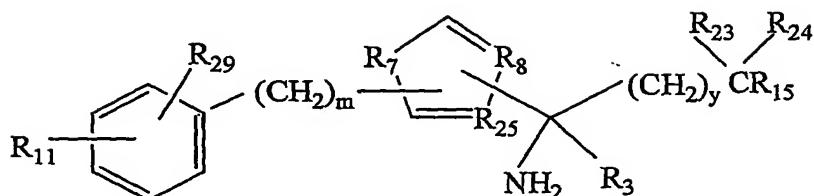
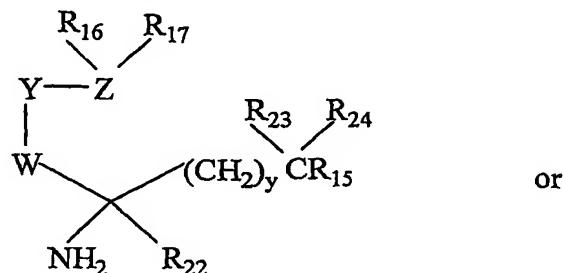


Claims

What is claimed is:

1. A compound represented by the formula:



5

wherein

W is CR₂₇R₂₈ or (CH₂)_nNH(CO);

wherein R₂₇ and R₂₈ are independently selected from the group consisting of H, halo and hydroxy;

10 Y is selected from the group consisting of a bond, CR₉R₁₀, carbonyl, NH, O or S;

wherein R₉ and R₁₀ are independently selected from the group consisting of H, halo, hydroxy and amino;

Z is CH₂, C₅-C₁₀ aryl, halo or C₅-C₁₀ heteroaryl;

15 R₁₁ and R₁₆ are independently selected from the group consisting of C₅-C₁₂ alkyl, C₅-C₁₂ alkenyl, C₅-C₁₂ alkynyl, C₅-C₁₂ alkoxy, (CH₂)_pO(CH₂)_q, C₁-C₈ alkyl(C₅-C₁₀ aryl)R₂₀, C₁-C₈ alkyl(C₅-C₁₀ heteroaryl)R₂₀, C₁-C₈ alkyl(C₅-C₁₀ cycloalkyl)R₂₀, C₁-C₁₀ alkoxy(C₅-C₁₀ aryl)R₂₀, C₁-C₁₀ alkoxy(C₅-C₁₀ heteroaryl)R₂₀ and C₁-C₁₀ alkoxy(C₅-C₁₀ cycloalkyl)R₂₀;

20 wherein R₂₀ is H or C₁-C₁₀ alkyl;

R₂₉ is H, halo, C₁-C₁₂ alkyl, C₁-C₁₂ alkenyl, C₁-C₁₂ alkynyl, C₁-C₁₂ alkoxy, (CH₂)_pO(CH₂)_q and (CH₂)_pNH(CH₂)_q;

R_{17} is selected from the group consisting of H, halo, NH_2 , C_1 - C_6 alkyl, C_1 - C_6 alkoxy, C_1 - C_6 alkylamino, C_1 - C_6 alkylcyano and C_1 - C_6 alkylthio;

R_3 is selected from the group consisting of H, C_1 - C_6 alkyl, $(C_1$ - C_4 alkyl)OH, and $(C_1$ - C_4 alkyl) NH_2 ;

5 R_{22} is selected from the group consisting of C_1 - C_6 alkyl, $(C_1$ - C_4 alkyl)OH and $(C_1$ - C_4 alkyl) NH_2 ;

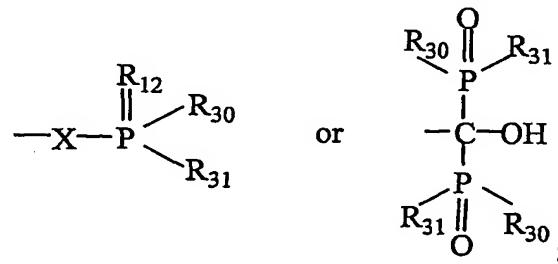
R_{23} is selected from the group consisting of H, F, CO_2H , OH, C_1 - C_6 alkyl, $(C_1$ - C_4 alkyl)OH, and $(C_1$ - C_4 alkyl) NH_2 ;

10 R_{24} is selected from the group consisting of H, F and PO_3H_2 , or R_{23} together with R_{24} and the carbon to which they are attached form a carbonyl group;

R_{25} , R_7 and R_8 are independently selected from the group consisting of O, S, CHR_{26} , CHR_{26} , NR_{26} , and N;

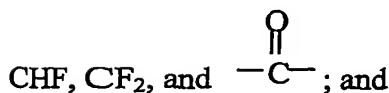
wherein R_{26} is H, F or C_1 - C_4 alkyl;

R_{15} is represented by the formula

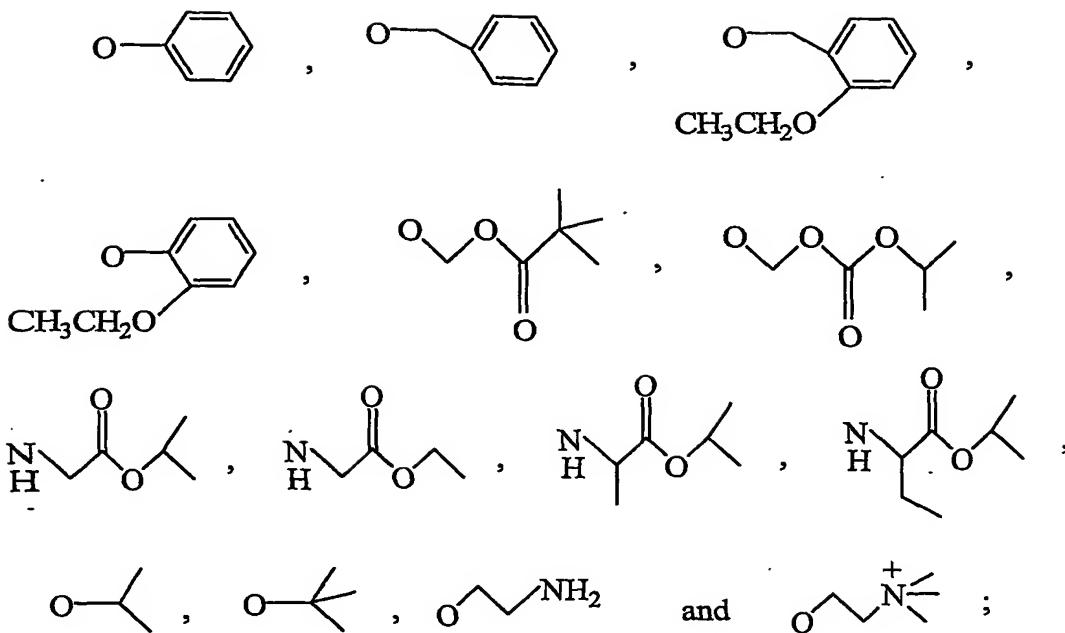


wherein R_{12} is selected from the group consisting of O, NH and S;

X is selected from the group consisting of O, NH, S, CH_2 , $CHOH$,



20 R_{30} and R_{31} are independently selected from the group consisting of C_1 - C_2 alkoxy,



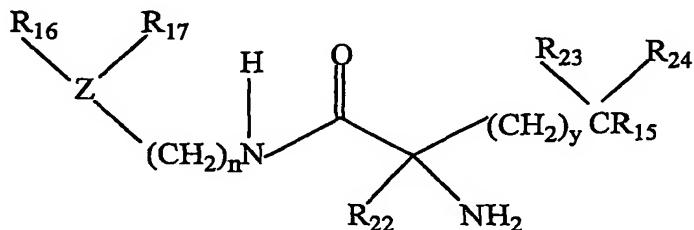
y and m are integers independently ranging from 0 to 4;

p and q are integers independently ranging from 1 to 10;

5 n is an integer ranging from 0 to 10;

or a pharmaceutically acceptable salt or tautomer thereof, with the proviso that when W is CR₂₇R₂₈, neither R₃₀ or R₃₁ are C₁-C₂ alkoxy.

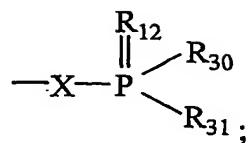
10 2. The compound of claim 1 wherein the compound is represented by the formula:



wherein

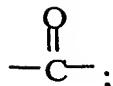
R₁₆ is selected from the group consisting of C₅-C₁₈ alkyl, C₅-C₁₈ alkenyl, C₅-C₁₈ alkynyl, C₅-C₁₈ alkoxy, (CH₂)_pO(CH₂)_q, C₅-C₁₀ (C₅-C₆ aryl)R₂₀, C₅-C₁₀ (C₅-C₆ heteroaryl)R₂₀, C₅-C₁₀ (C₅-C₆ cycloalkyl)R₂₀, C₅-C₁₀ alkoxy(C₅-C₆ aryl)R₂₀, C₅-C₁₀ alkoxy(C₅-C₆ heteroaryl)R₂₀ and C₅-C₁₀ alkoxy(C₅-C₆ cycloalkyl)R₂₀;

R₁₅ is represented by the structure

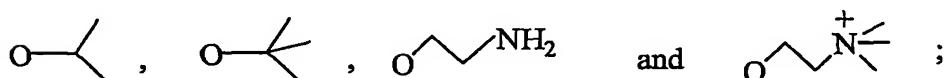
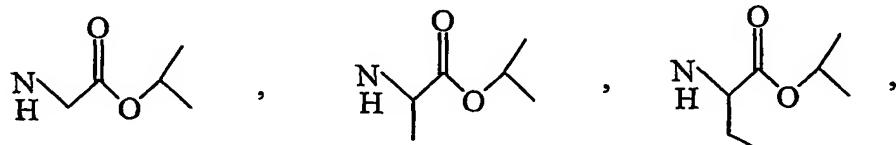
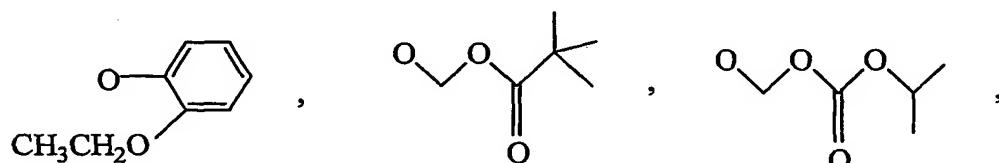
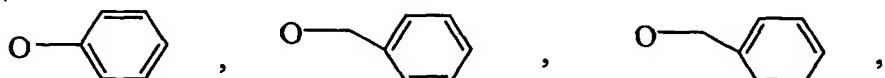


wherein R_{12} is selected from the group consisting of O and S;

X is selected from the group consisting of O, S, CH_2 , CHOH , CHF , CF_2 , and



5 R_{30} and R_{31} are independently selected from the group consisting of $\text{C}_1\text{-C}_2$ alkoxy,



and R_{23} and R_{24} are independently selected from the group consisting of H, F and $\text{C}_1\text{-C}_4$ alkyl;

10 or a pharmaceutically acceptable salt or tautomer thereof.

3. The compound of claim 2 wherein

y is 0 or 1;

n is 1-10;

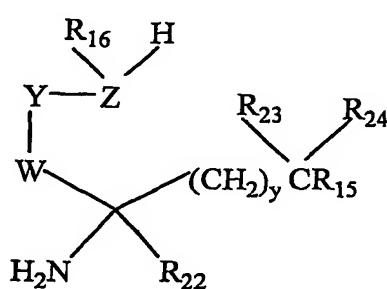
15 Z is CH_2 ; and

R_{17} is H.

4. The compound of claim 2 wherein
 y is 0 or 1;
 n is 0;
 5 Z is C₅-C₆ aryl or C₅-C₆ heteroaryl;
 R₁₆ is selected from the group consisting of C₅-C₁₂ alkyl C₂-C₁₂ alkenyl or C₅-C₁₂ alkoxy; and
 R₁₇ and R₂₃ are each H.

10 5. The compound of claim 4 wherein
 Z is C₅-C₆ aryl;
 R₂₄ is H; and
 R₂₂ is selected from the group consisting of C₁-C₄ alkyl, and (C₁-C₄ alkyl)OH.

15 6. The compound of claim 1 wherein the compound is represented by the formula:



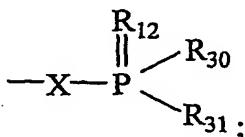
wherein Z is C₅-C₆ aryl or C₅-C₆ heteroaryl;
 20 R₁₆ is selected from the group consisting of C₅-C₁₂ alkyl, C₅-C₁₂ alkenyl, C₅-C₁₂ alkynyl and C₅-C₁₂ alkoxy;
 Y is selected from the group consisting of CR₂₇R₂₈, CHO, CF₂, CFH, carbonyl, NH, O and S;
 W is CR₂₇R₂₈;
 25 wherein R₂₇ and R₂₈ are independently selected from the group consisting of H, halo and hydroxy;

R_{22} is selected from the group consisting of C_1 - C_6 alkyl, $(C_1$ - C_4 alkyl)OH and $(C_1$ - C_4 alkyl)NH₂;

R_{23} is selected from the group consisting of H, F, CO₂H, C_1 - C_6 alkyl, $(C_1$ - C_4 alkyl)OH, and $(C_1$ - C_4 alkyl)NH₂;

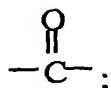
5 R_{24} is selected from the group consisting of H, F and PO₃H₂, or R_{23} together with R_{24} and the carbon to which they are attached form a carbonyl group;

R_{15} is represented by the structure

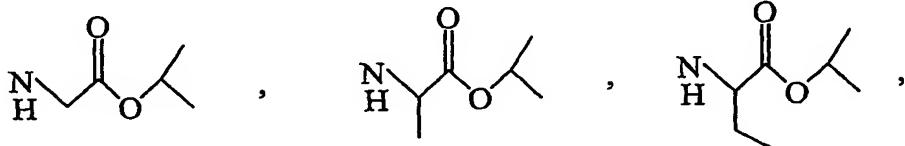
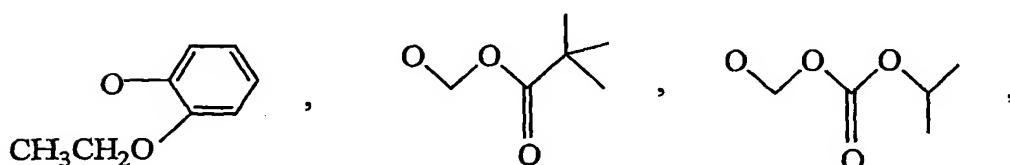
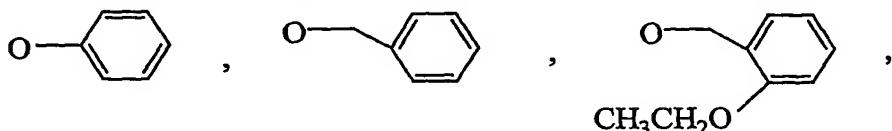


wherein R_{12} is selected from the group consisting of O and S;

10 X is selected from the group consisting of O, S, CH₂, CHO₂, CHF, CF₂, and



R_{30} and R_{31} are independently selected from the group consisting of



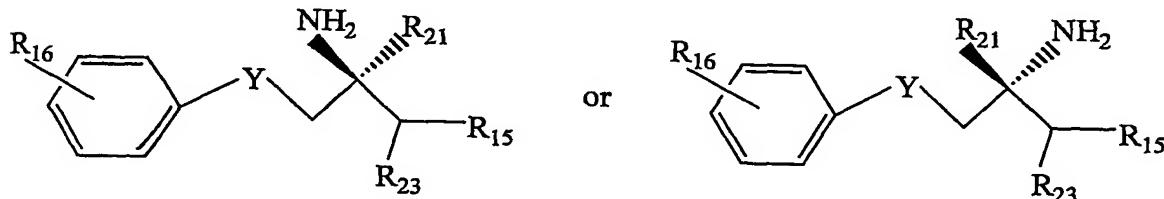
y is an integer ranging from 0 to 4;

15 or a pharmaceutically acceptable salt or tautomer thereof.

7. The compound of claim 6 wherein
 R_{23} and R_{24} are both H;
 R_{27} and R_{28} are independently selected from the group consisting of H and F;
 Z is C_5 - C_6 aryl or C_5 - C_6 heteroaryl;
5 R_{22} is selected from the group consisting of OH, C_1 - C_4 alkyl, and $(C_1$ - C_3 alkyl)OH;
 R_{12} is O;
 X is selected from the group consisting of O, CH_2 , $CHOH$ and CHF ; and
 y is 0 or 1.

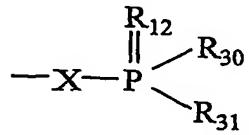
10

8. The compound of claim 6 wherein the compound is represented by the formula:



15

wherein R_{15} is represented by the structure



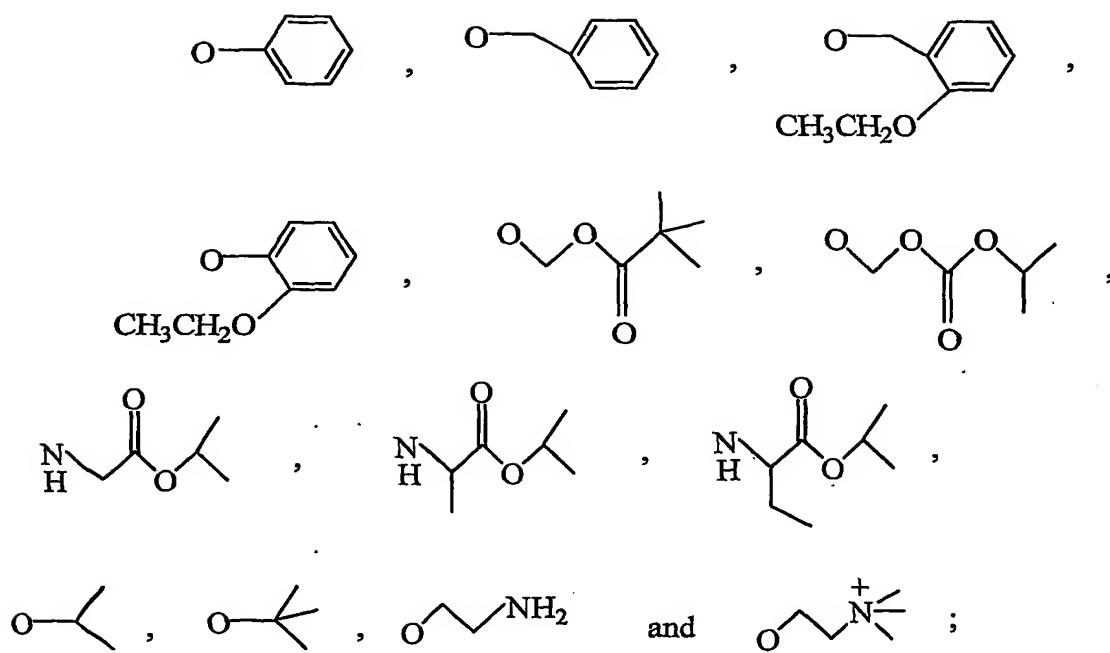
wherein R_{12} is selected from the group consisting of O and S;

X is selected from the group consisting of O, S, CH_2 , $CHOH$, CHF , CF_2 , and



20

R_{30} and R_{31} are independently selected from the group consisting of



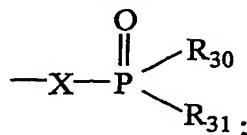
R₂₁ is selected from the group consisting of C₁-C₃ alkyl and (C₁-C₄ alkyl)OH;

R₂₃ is selected from the group consisting of H, F, C₁-C₃ alkyl and (C₁-C₄ alkyl)OH;
 5 or a pharmaceutically acceptable salt thereof.

9. The compound of claim 8 wherein Y is selected from the group consisting of carbonyl, NH and O.

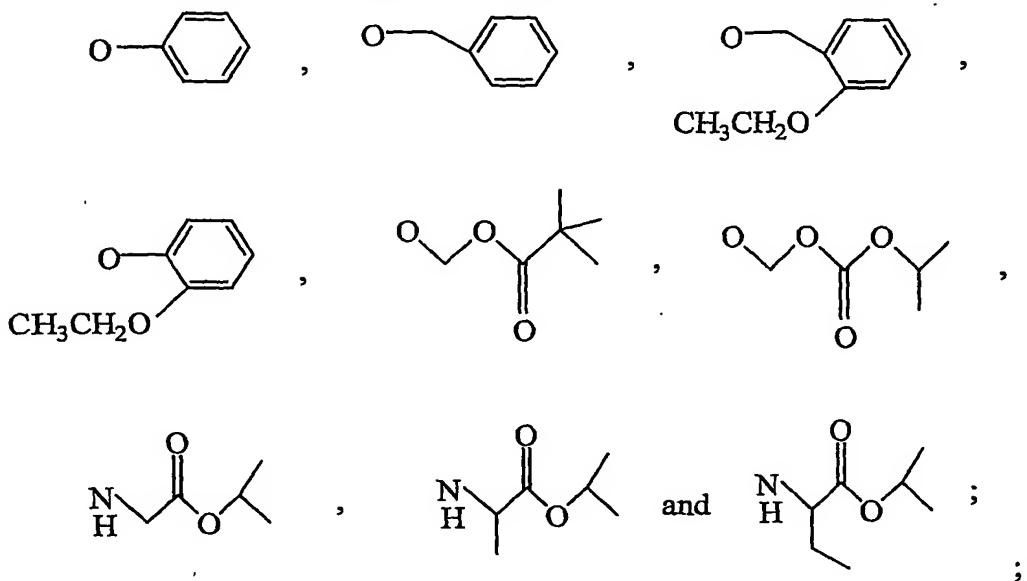
10

10. The compound of claim 9 wherein R₁₅ is represented by the structure



wherein X is selected from the group consisting of O, CH₂, CHO and CHF;

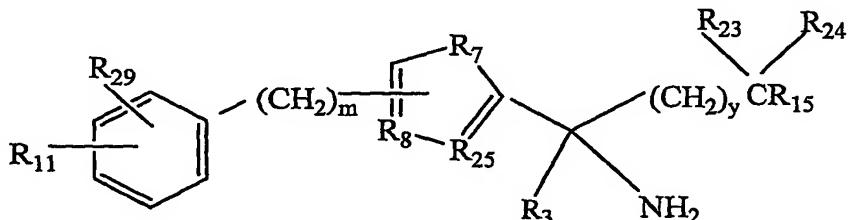
R_{30} and R_{31} are independently selected from the group consisting of



R_{23} is selected from the group consisting of H, F and C₁-C₃ alkyl; or a pharmaceutically acceptable salt thereof.

5

11. The compound of claim 1 wherein the compound is represented by the formula:



wherein

10 R_{11} is selected from the group consisting of C₅-C₁₈ alkyl, C₅-C₁₈ alkenyl, C₅-C₁₈ alkynyl, C₅-C₁₈ alkoxy, (CH₂)_pO(CH₂)_q, (CH₂)_pNH(CH₂)_q, (CH₂)_p(CO)(CH₂)_q, (CH₂)_p(COO)(CH₂)_q, C₁-C₁₀ alkyl(C₅-C₆ aryl)R₂₀, C₁-C₁₀ alkyl(C₅-C₆ heteroaryl)R₂₀, C₁-C₁₀ alkyl(C₅-C₆ cycloalkyl)R₂₀, C₁-C₁₀ alkoxy(C₅-C₆ aryl)R₂₀, C₁-C₁₀ alkoxy(C₅-C₆ heteroaryl)R₂₀ and C₁-C₁₀ alkoxy(C₅-C₆ cycloalkyl)R₂₀;

15

wherein R₂₀ is H or C₁-C₁₀ alkyl;

p and q are integers independently ranging from 1 to 10;

R₂₉ is H, halo, C₁-C₁₂ alkyl, C₁-C₁₂ alkenyl, C₁-C₁₂ alkynyl, C₁-C₁₂ alkoxy, (CH₂)_pO(CH₂)_q and (CH₂)_pNH(CH₂)_q;

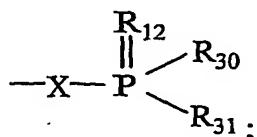
R₇ and R₈ are independently selected from the group consisting of O, S, CR₂₆, CHR₂₆, NR₂₆, and N;

wherein R₂₆ is H, F or C₁-C₄ alkyl;

R₂₅ is N or CH;

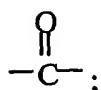
5 R₃ is selected from the group consisting of C₁-C₄ alkyl, (C₁-C₄ alkyl)OH, and (C₁-C₄ alkyl)NH₂;

R₁₅ is represented by the structure

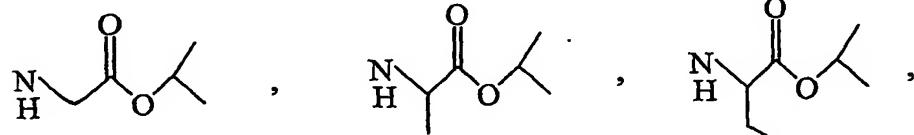
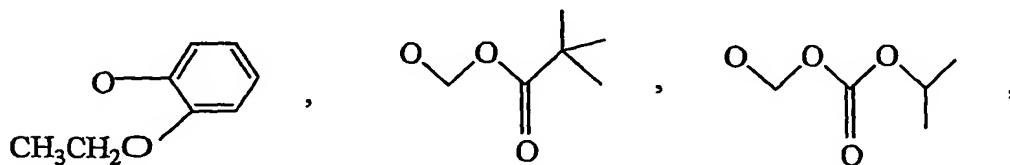
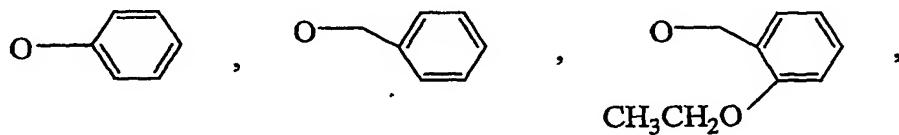


wherein R₁₂ is selected from the group consisting of O and S;

10 X is selected from the group consisting of O, S, CH₂, CHO, CHF, CF₂, and



R₃₀ and R₃₁ are independently selected from the group consisting of C₁-C₂ alkoxy,



15 R₂₃ is selected from the group consisting of H, F, OH, C₁-C₄ alkyl, CO₂H and C₁-C₄ alkyl;

R_{24} is selected from the group consisting of H, F, C_1 - C_4 alkyl and PO_3H_2 , or R_{23} together with R_{24} and the carbon to which they are attached form a carbonyl group; and

5 y and m are integers independently ranging from 0 to 4;
or a pharmaceutically acceptable salt or tautomer thereof.

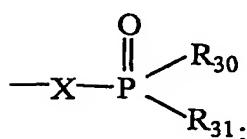
12. The compound of claim 11 wherein
m is 0;
 y is 0 or 1;
10 R_{23} and R_{24} are independently selected from the group consisting of H and F.

13. The compound of claim 11 wherein R_3 is selected from the group consisting of C_1 - C_3 alkyl and $(C_1$ - C_4 alkyl)OH;

15 R_8 is CH; and
 R_{25} is N.

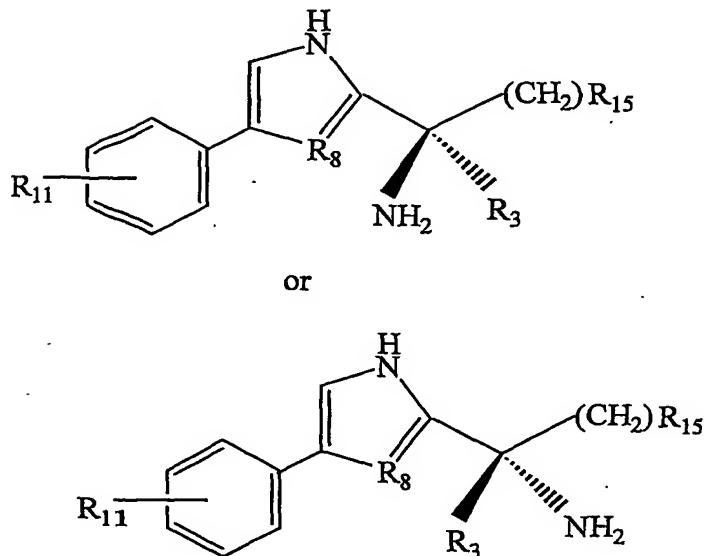
14. The compound of claim 12 or 13 wherein
 R_{11} is selected from the group consisting of C_5 - C_{18} alkyl, C_5 - C_{18} alkenyl, C_5 - C_{18} alkynyl, C_5 - C_{18} alkoxy and $(CH_2)_pO(CH_2)_q$; and
20 R_{29} is selected from the group consisting of H, halo and C_1 - C_{12} alkyl;
or a pharmaceutically acceptable salt or tautomer thereof.

15. The compound of claim 12, 13 or 14 wherein
 y is 0; and
25 R_{15} is represented by the structure



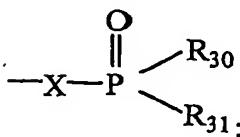
wherein X is selected from the group consisting of CH_2 , $CHOH$, CHF , CF_2 ,
and $\begin{array}{c} O \\ || \\ -C- \end{array}$.

16. The compound of claim 12 wherein the compound is represented by the formula:



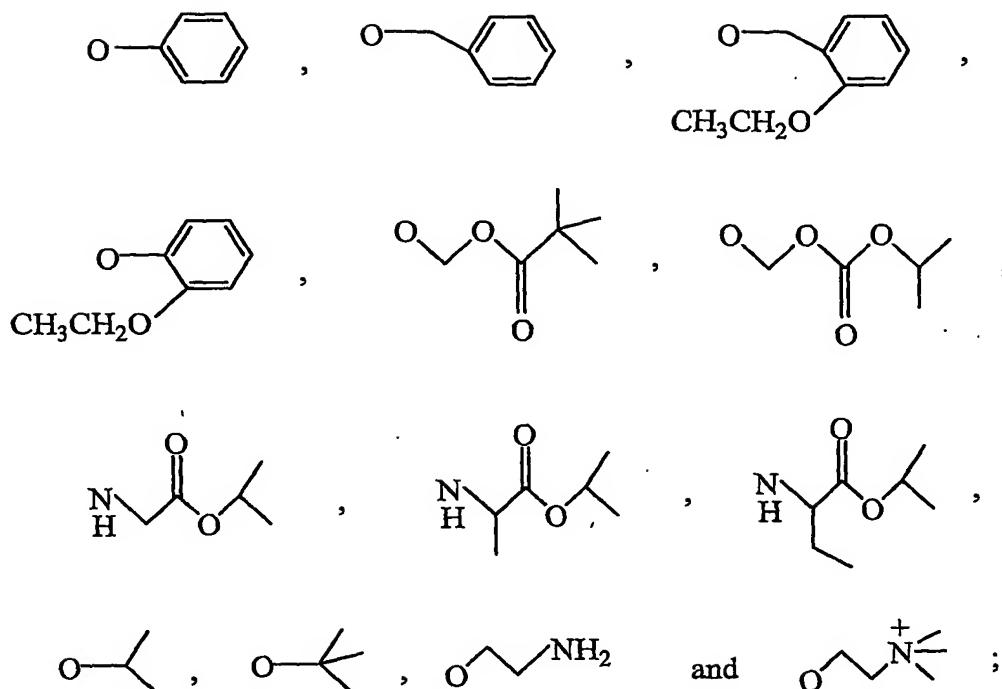
5 wherein \mathbf{R}_{11} is $\text{C}_5\text{-C}_{18}$ alkyl or $\text{C}_5\text{-C}_{18}$ alkenyl; and
 \mathbf{R}_8 is N, CH or S;
or a pharmaceutically acceptable salt or tautomer thereof.

10 17. The compound of claim 16 wherein
 \mathbf{R}_{15} is represented by the structure



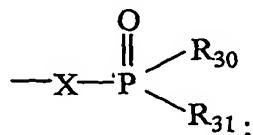
wherein \mathbf{X} is selected from the group consisting of O, CH_2 , CHOH , CHF , CF_2 ,
and $\begin{array}{c} \text{O} \\ \parallel \\ \text{---C---} \end{array}$;

15 \mathbf{R}_{30} and \mathbf{R}_{31} are independently selected from the group consisting of $\text{C}_1\text{-C}_2$ alkoxy,

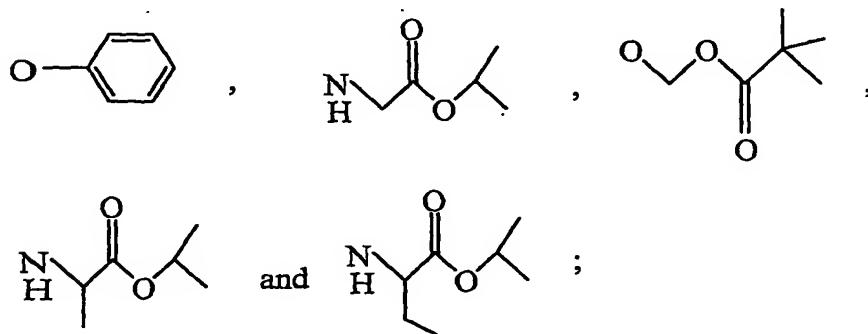


or a pharmaceutically acceptable salt or tautomer thereof.

18. The compound of claim 17 wherein R_{11} is C_5 - C_9 alkyl;
 5 R_{15} is represented by the structure

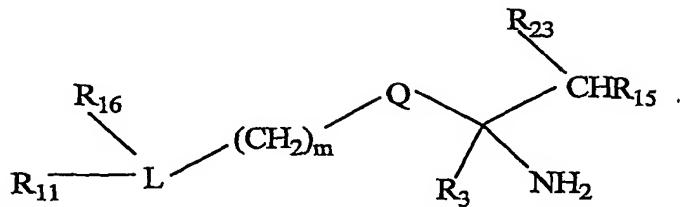


wherein X is selected from the group consisting of O, CH_2 and CHF ;
 R_{30} and R_{31} are independently selected from the group consisting of



10 and R_3 is CH_3 .

19. A compound represented by the formula



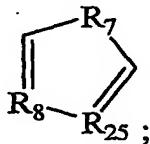
wherein R_{11} is selected from the group consisting of C_5 - C_{18} alkyl, C_5 - C_{18} alkenyl, C_5 - C_{18} alkynyl, C_5 - C_{18} alkoxy, $(CH_2)_pO(CH_2)_q$, C_1 - C_{10} alkyl(C_5 - C_6 aryl) R_{20} , C_1 - C_{10} alkyl(C_5 - C_6 heteroaryl) R_{20} , C_1 - C_{10} alkyl(C_5 - C_6 cycloalkyl) R_{20} , C_1 - C_{10} alkoxy(C_5 - C_6 aryl) R_{20} , C_1 - C_{10} alkoxy(C_5 - C_6 heteroaryl) R_{20} and C_1 - C_{10} alkoxy(C_5 - C_6 cycloalkyl) R_{20} ;

wherein R_{20} is H or C_1 - C_{10} alkyl;

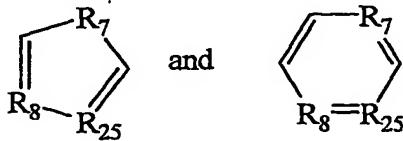
p and q are integers independently ranging from 1 to 10;

10 R_{16} is selected from the group consisting of H, C_1 - C_{18} alkyl, C_2 - C_{18} alkenyl, C_2 - C_{18} alkynyl, C_1 - C_{18} alkoxy, $(CH_2)_pO(CH_2)_q$ and $(CH_2)_pNH(CH_2)_q$;

Q is



L is selected from the group consisting of

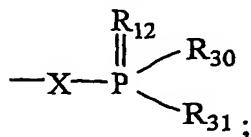


15 wherein R_{25} , R_7 and R_8 are independently selected from the group consisting of O, S, CR_{26} , CHR_{26} , NR_{26} , and N, R_{26} is H, F or C_1 - C_4 alkyl, and m is an integer ranging from 0-4;

R_3 is selected from the group consisting of C_1 - C_4 alkyl and $(C_1$ - C_4 alkyl)OH;

20 R_{23} is H, F or C_1 - C_4 alkyl, and

R_{15} is represented by the structure

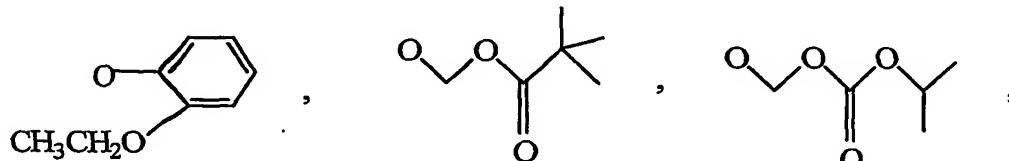
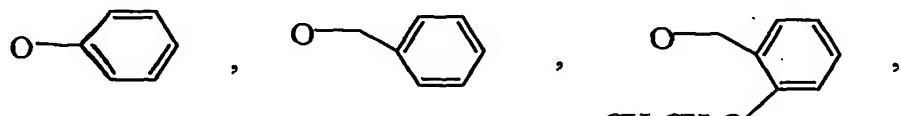


wherein R_{12} is selected from the group consisting of O and S;

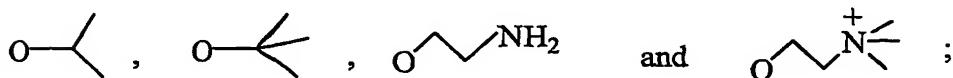
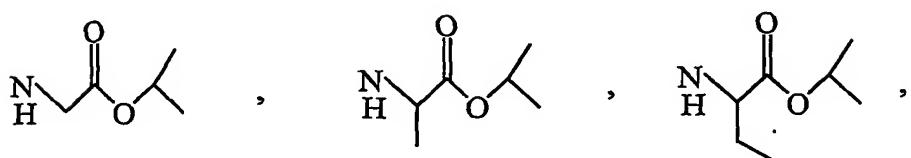
X is selected from the group consisting of O, S, CH₂, CHO, CHF, CF₂, and



R₃₀ and R₃₁ are independently selected from the group consisting of C₁-C₂ alkoxy,



5



or a pharmaceutically acceptable salt or tautomer thereof.

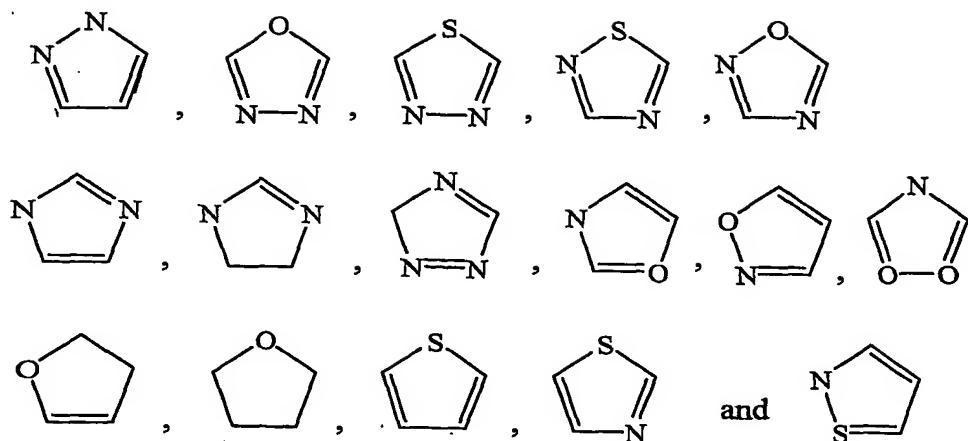
20. The compound of claim 19 wherein

10 R₁₁ is selected from the group consisting of C₅-C₁₈ alkyl, C₅-C₁₈ alkenyl, C₅-C₁₈ alkynyl, C₅-C₁₈ alkoxy and (CH₂)_pO(CH₂)_q;

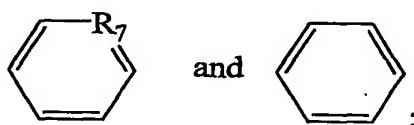
wherein p and q are integers independently ranging from 1 to 10;

R₁₆ is selected from the group consisting of H, C₁-C₁₀ alkyl, C₂-C₁₀ alkenyl and C₂-C₁₀ alkynyl;

15 Q is selected from the group consisting of



L is selected from the group consisting of

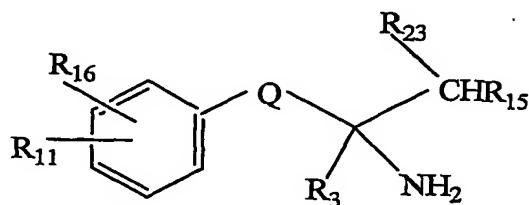


m is 0; and

5

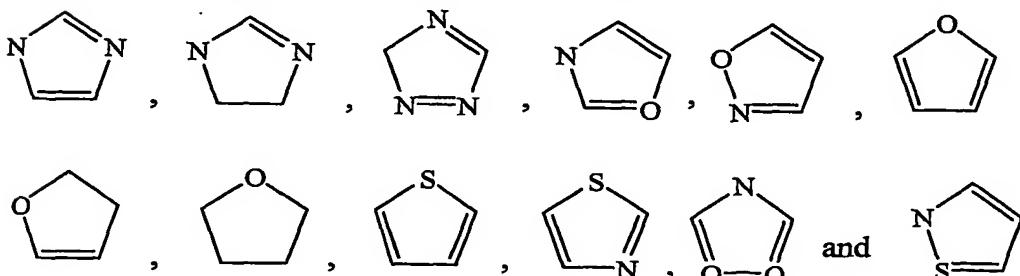
R₂₃ is H or F.

21. The compound of claim 19 wherein the compound is represented by the formula:



10

wherein Q is selected from the group consisting of



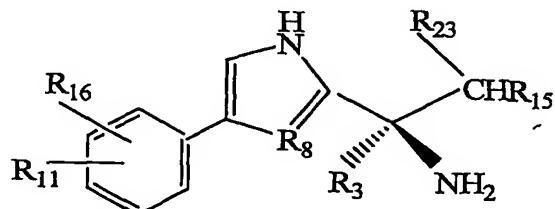
R₂₃ is H or F;

R₁₂ is O; and

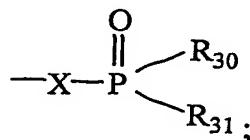
X is selected from the group consisting of O, CH₂, CHO, CHF, CF₂, and



22. The compound of claim 19 wherein the compound is represented by
5 the formula:



23. The compound of claim 22 wherein
R₃ is selected from the group consisting of C₁-C₄ alkyl and (C₁-C₄ alkyl)OH;
10 R₈ is selected from the group consisting of O, S, CR₂₆ and N;
R₂₃ and R₂₆ are independently H or F; and
R₁₅ is represented by the structure



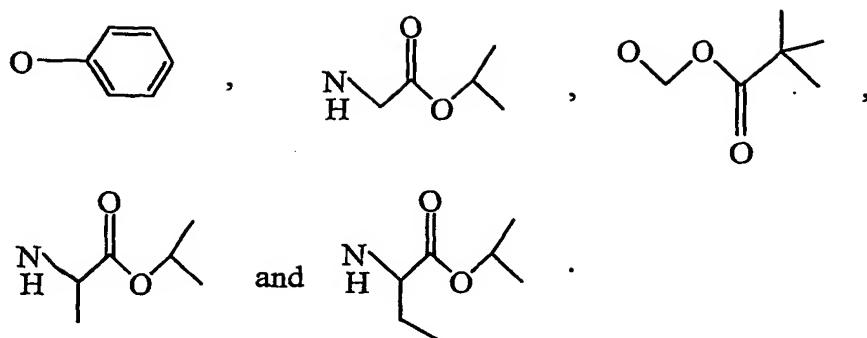
wherein X is selected from the group consisting of O, CH₂, CHO, CHF, CF₂
15 and



24. The compound of claim 23 wherein
X is O.

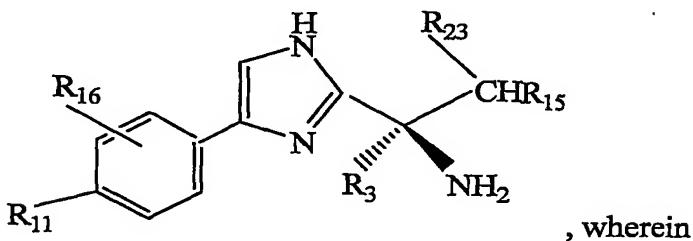
20 25. The compound of claim 23 wherein
X is selected from the group consisting of CH₂, CHF and CF₂.

26. The compound of claim 24 or 25 wherein
R₃₀ and R₃₁ are the same and are selected from the group consisting of



27. The compound of claim 25 wherein R_8 is N.

5 28. The compound of claim 25 wherein the compound is represented by the formula:



10 R_{11} is selected from the group consisting of C_5 - C_{18} alkyl and C_5 - C_{18} alkenyl; R_3 is CH_3 ; and

R_{16} is selected from the group consisting of H, and C_1 - C_4 alkyl.

29. The compound of any of claims 19, 24, 25, or 27 wherein

15 R_{11} is selected from the group consisting of C_5 - C_{18} alkyl, C_5 - C_{18} alkenyl, C_5 - C_{18} alkynyl, C_5 - C_{18} alkoxy and $(CH_2)_pO(CH_2)_q$;

wherein p and q are integers independently ranging from 1 to 10; and

16 R_{16} is selected from the group consisting of H, C_1 - C_{18} alkyl, C_2 - C_{18} alkenyl and C_2 - C_{18} alkynyl.

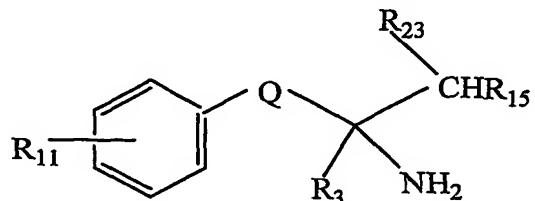
30. The compound of any of claims 19, 24, 25, 27 or 28 wherein

20 R_{11} is C_5 - C_{18} alkyl or C_5 - C_{18} alkenyl; and

R_{16} is H.

31. A composition comprising a compound of claim 1, 2, 6, 8, 11, 16, 19, 21, 22, 28 or 30 and
a pharmaceutically acceptable carrier.

5 32. A composition comprising a compound represented by the formula



wherein R₁₁ is selected from the group consisting of C₅-C₁₈ alkyl, C₅-C₁₈ alkenyl, C₅-C₁₈ alkynyl, C₅-C₁₈ alkoxy and (CH₂)_pO(CH₂)_q;

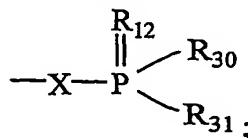
wherein p and q are integers independently ranging from 1 to 10;

10 Q is selected from the group consisting of C₅-C₆ optionally substituted cycloalkyl, C₅-C₆ optionally substituted heterocyclic, C₅-C₆ optionally substituted aryl, C₅-C₆ optionally substituted heteroaryl and -NH(CO)-;

R₃ is selected from the group consisting of H, C₁-C₄ alkyl and (C₁-C₄ alkyl)OH;

15 R₂₃ is H, F or C₁-C₄ alkyl, and

R₁₅ is represented by the structure

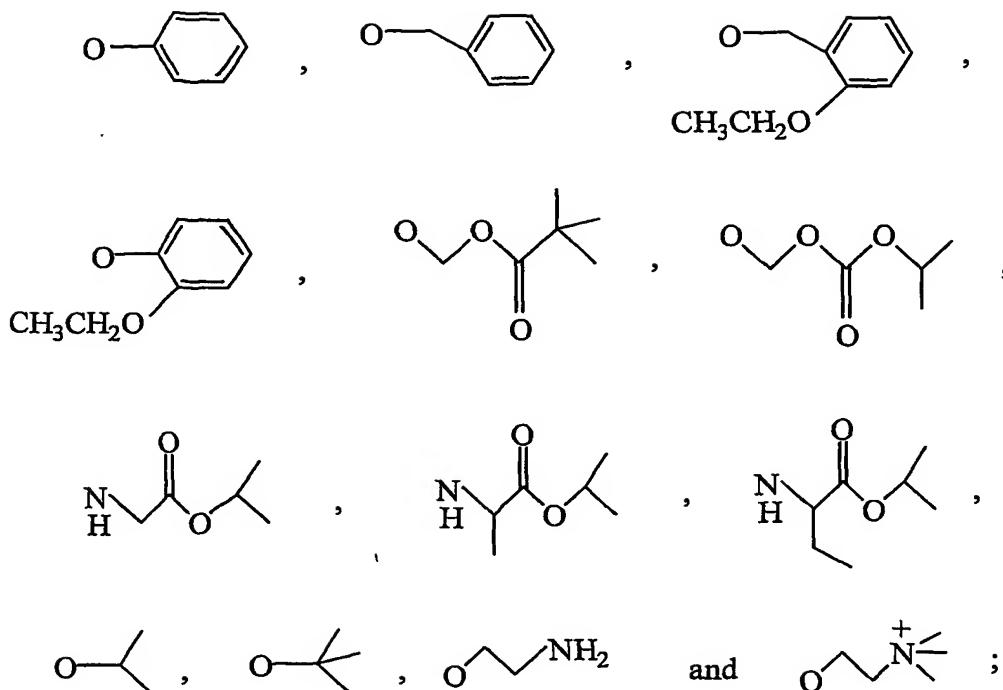


wherein R₁₂ is selected from the group consisting of O and S;

X is selected from the group consisting of O, S, CH₂, CHO, CHF, CF₂, and

20 $\begin{array}{c} \text{O} \\ \parallel \\ -\text{C}- \end{array}$;

R₃₀ and R₃₁ are independently selected from the group consisting of C₁-C₂ alkoxy,

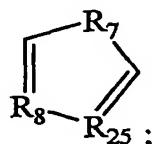


or a pharmaceutically acceptable salt or tautomer thereof and

a pharmaceutically acceptable carrier.

5 33. The composition of claim 32 wherein

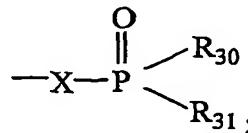
Q is



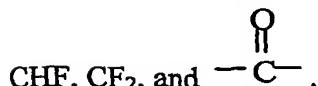
wherein R₂₅, R₇ and R₈ are independently selected from the group consisting of O, S, CR₂₆, CHR₂₆, NR₂₆, and N; and R₂₆ is H, F or C₁-C₄ alkyl;

10 R₂₃ is H or F; and

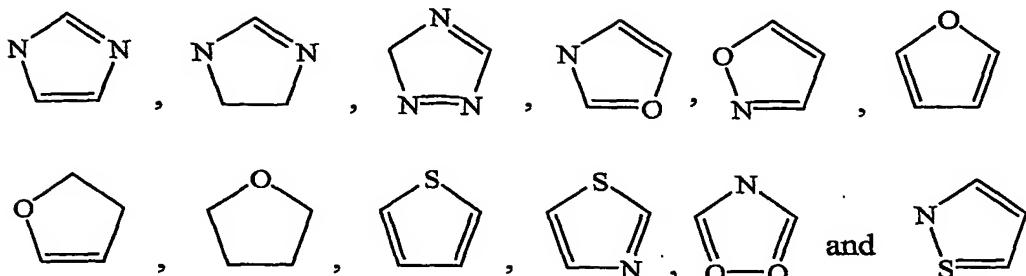
R₁₅ is represented by the structure



wherein X is selected from the group consisting of O, CH₂, CHO, CHF, CF₂, and $-\text{C}=\text{O}-$.

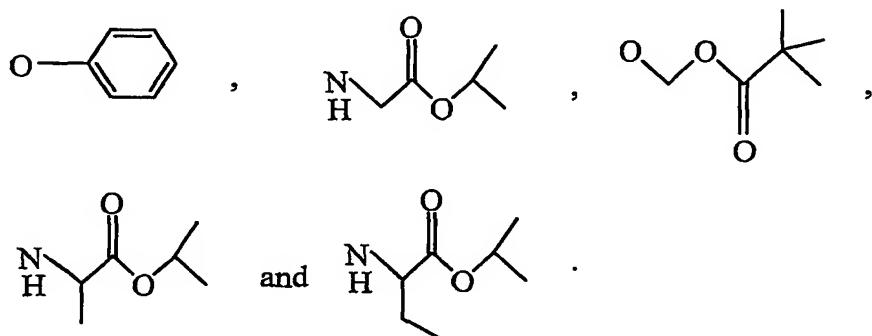


34. The composition of claim 33 wherein Q is selected from the group consisting of



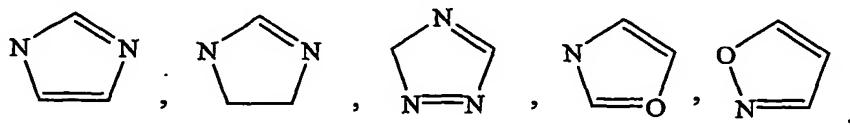
5

35. The composition of claim 34 wherein X is selected from the group consisting of CH_2 , CF_2 and CHF ; and R_{30} and R_{31} are independently selected from the group consisting of $\text{C}_1\text{-C}_2$ alkoxy,



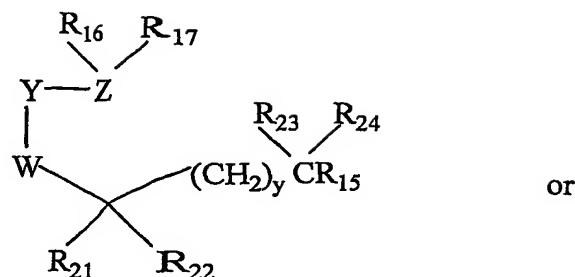
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36. The composition of claim 35 wherein Q is selected from the group consisting of



15 or a pharmaceutically acceptable salt or tautomer thereof.

37. A method for modulating the activity of an S1P receptor, said method comprising the step of contacting said receptor with a compound represented by the formula:



wherein

W is $CR_{27}R_{28}$ or $(CH_2)_nNH(CO)$;

wherein R_{27} and R_{28} are independently selected from the group

5 consisting of H, halo and hydroxy;

Y is selected from the group consisting of a bond, CR_9R_{10} , carbonyl, NH, O or S;

wherein R_9 and R_{10} are independently selected from the group consisting of H, halo, hydroxy and amino;

10 Z is CH_2 , C_5-C_6 aryl, halo or C_5-C_6 heteroaryl;

R_{11} is selected from the group consisting of C_5-C_{18} alkyl, C_5-C_{18} alkenyl, C_5-C_{18} alkynyl, C_5-C_{18} alkoxy, $(CH_2)_pO(CH_2)_q$, C_1-C_{10} alkyl(C_5-C_6 aryl) R_{20} , C_1-C_{10} alkyl(C_5-C_6 heteroaryl) R_{20} , C_1-C_{10} alkyl(C_5-C_6 cycloalkyl) R_{20} , C_1-C_{10} alkoxy(C_5-C_6 aryl) R_{20} , C_1-C_{10} alkoxy(C_5-C_6 heteroaryl) R_{20} and C_1-C_{10} alkoxy(C_5-C_6 cycloalkyl) R_{20} ;

15 wherein R_{20} is H or C_1-C_{10} alkyl; and

p and q are integers independently ranging from 1 to 10;

R_{16} is selected from the group consisting of H, C_1-C_{18} alkyl, C_2-C_{18} alkenyl, C_2-C_{18} alkynyl, C_1-C_{18} alkoxy, $(CH_2)_pO(CH_2)_q$ and $(CH_2)_pNH(CH_2)_q$;

R_{29} is H, halo or C_1-C_{10} alkyl;

20 R_{17} is selected from the group consisting of H, halo, NH_2 , C_1-C_6 alkyl, C_1-C_6 alkoxy, C_1-C_6 alkylamino, C_1-C_6 alkylcyano and C_1-C_6 alkylthio;

R_2 , and R_{21} are both NH_2 ;

R_3 is selected from the group consisting of H, C₁-C₆ alkyl, (C₁-C₄ alkyl)OH, and (C₁-C₄ alkyl)NH₂;

R_{22} is selected from the group consisting of C₁-C₆ alkyl, (C₁-C₄ alkyl)OH and (C₁-C₄ alkyl)NH₂;

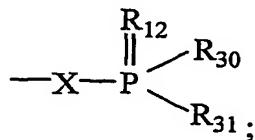
5 R_{23} is selected from the group consisting of H, F, CO₂H, OH, C₁-C₆ alkyl, (C₁-C₄ alkyl)OH, and (C₁-C₄ alkyl)NH₂;

R_{24} is selected from the group consisting of H, F and PO₃H₂, or R_{23} together with R_{24} and the carbon to which they are attached form a carbonyl group;

10 R_{25} , R_7 and R_8 are independently selected from the group consisting of O, S, CHR₂₆, CHR₂₆, NR₂₆, and N;

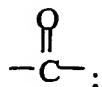
 wherein R_{26} is H, F or C₁-C₄ alkyl;

R_{15} is represented by the structure

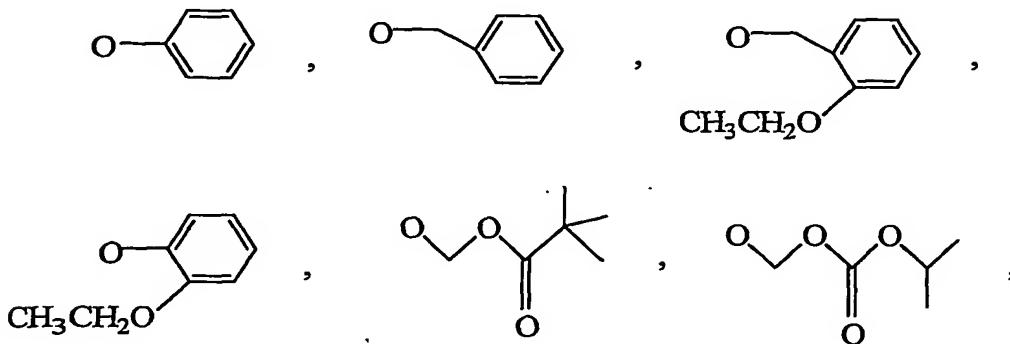


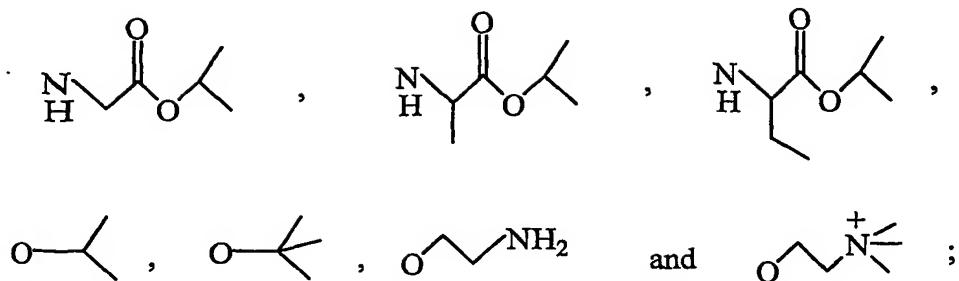
 wherein R_{12} is selected from the group consisting of O and S;

15 X is selected from the group consisting of O, S, CH₂, CHO_H, CHF, CF₂, and



R_{30} and R_{31} are independently selected from the group consisting of C₁-C₂ alkoxy,





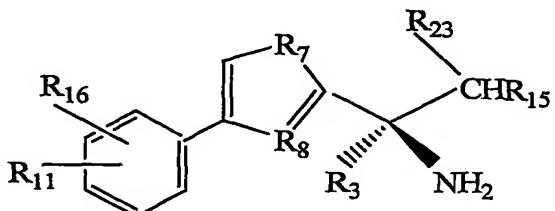
y and m are integers independently ranging from 0 to 4;

n is an integer ranging from 0 to 10;

or a pharmaceutically acceptable salt or tautomer thereof, with the proviso that W and

5 Y are not both methylene.

38. The method of claim 37 wherein the administered composition comprises a compound represented by the formula:



10 wherein

R₁₁ is selected from the group consisting of C₅-C₁₈ alkyl, C₅-C₁₈ alkenyl, C₅-C₁₈ alkynyl, C₅-C₁₈ alkoxy and (CH₂)_pO(CH₂)_q;

wherein p and q are integers independently ranging from 1 to 10;

R₁₆ is selected from the group consisting of H, C₁-C₁₀ alkyl,

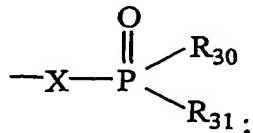
15 C₂-C₁₀ alkenyl and C₂-C₁₀ alkynyl;

R₃ is selected from the group consisting of C₁-C₄ alkyl and (C₁-C₄ alkyl)OH;

R₇ and R₈ are independently selected from the group consisting of O, S, CR₂₆, CHR₂₆, NH and N;

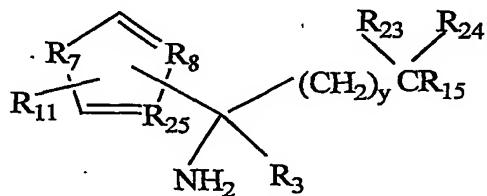
R₂₃ and R₂₆ are independently H or F; and

20 R₁₅ is represented by the structure



wherein X is selected from the group consisting of O, CH₂, CHO, CHF, CF₂ and $\text{C}=\text{O}$.

39. A method of providing immuno-modulation to a patient in need thereof, said method comprising the step of administering to said patient a composition comprising a compound represented by the formula:



wherein

R₁₁ is independently selected from the group consisting of C₅-C₁₂ alkyl, C₅-C₁₂ 10 alkenyl, C₅-C₁₂ alkynyl, C₅-C₁₂ alkoxy, (CH₂)_pO(CH₂)_q, (C₅-C₁₀ aryl)R₄₀, (C₅-C₁₀ heteroaryl)R₄₀, (C₅-C₁₀ cycloalkyl)R₄₀;

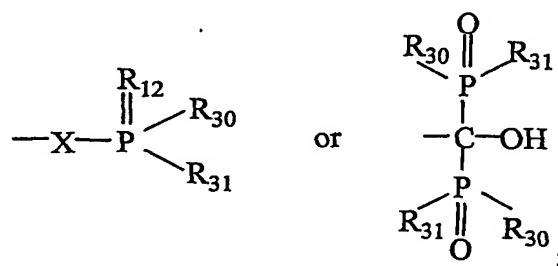
wherein R₄₀ is selected from the group consisting of H, C₁-C₁₂ alkyl, C₂-C₁₂ alkenyl, (C₅-C₁₀ cycloalkyl)R₂₀, C₁-C₁₀ alkoxy (C₅-C₁₀ aryl)R₂₀, C₁-C₁₀ alkoxy(C₅-C₁₀ heteroaryl)R₂₀ and C₁-C₁₀ alkoxy(C₅-C₁₀ cycloalkyl)R₂₀;

15 wherein R₂₀ is H or C₁-C₁₀ alkyl;

R₂₅, R₇ and R₈ are independently selected from the group consisting of O, S, CHR₂₆, CHR₂₆, NR₂₆, and N;

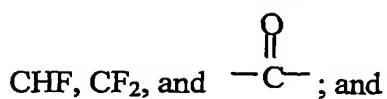
wherein R₂₆ is H, F or C₁-C₄ alkyl;

20 R₃ is selected from the group consisting of C₁-C₆ alkyl and (C₁-C₄ alkyl)OH; R₁₅ is represented by the formula

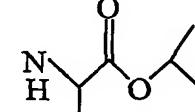
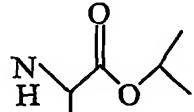
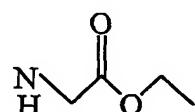
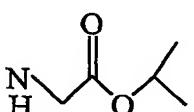
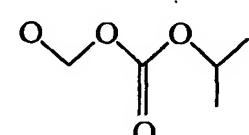
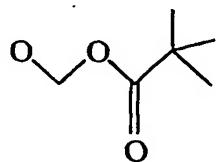
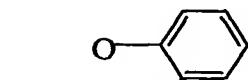
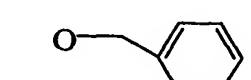
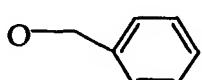
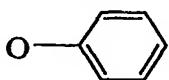


wherein R₁₂ is selected from the group consisting of O, NH and S;

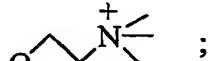
X is selected from the group consisting of O, NH, S, CH₂, CHOH,



R₃₀ and R₃₁ are independently selected from the group consisting of C₁-C₂ alkoxy,



and



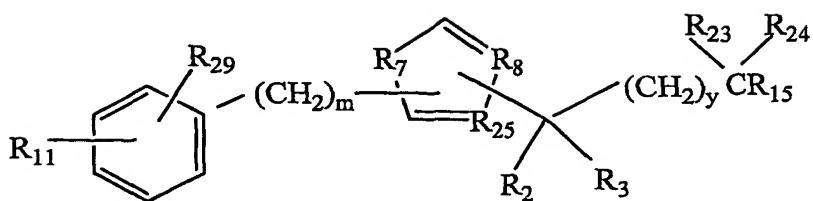
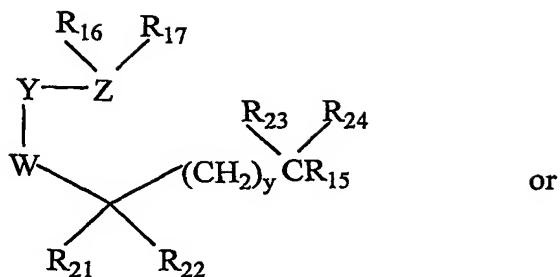
y is an integer ranging from 0 to 4;

p and q are integers independently ranging from 1 to 10;

or a pharmaceutically acceptable salt or tautomer thereof.

10

40. A method of providing immuno-modulation to a patient in need thereof, said method comprising the step of administering to said patient a composition comprising a compound represented by the formula:



wherein

W is $CR_{27}R_{28}$ or $(CH_2)_nNH(CO)$;

wherein R_{27} and R_{28} are independently selected from the group

5 consisting of H, halo and hydroxy;

Y is selected from the group consisting of a bond, CR_9R_{10} , carbonyl, NH, O or S;

wherein R_9 and R_{10} are independently selected from the group consisting of H, halo, hydroxy and amino;

10 Z is CH_2 , C_5 - C_6 aryl, halo or C_5 - C_6 heteroaryl;

R_{11} is selected from the group consisting of C_5 - C_{18} alkyl, C_5 - C_{18} alkenyl, C_5 - C_{18} alkynyl, C_5 - C_{18} alkoxy, $(CH_2)_pO(CH_2)_q$, C_1 - C_{10} alkyl(C_5 - C_6 aryl) R_{20} , C_1 - C_{10} alkyl(C_5 - C_6 heteroaryl) R_{20} , C_1 - C_{10} alkyl(C_5 - C_6 cycloalkyl) R_{20} , C_1 - C_{10} alkoxy(C_5 - C_6 aryl) R_{20} , C_1 - C_{10} alkoxy(C_5 - C_6 heteroaryl) R_{20} and C_1 - C_{10} alkoxy(C_5 - C_6 cycloalkyl) R_{20} ;

15 wherein R_{20} is H or C_1 - C_{10} alkyl; and

p and q are integers independently ranging from 1 to 10;

R_{16} is selected from the group consisting of H, C_1 - C_{18} alkyl, C_2 - C_{18} alkenyl, C_2 - C_{18} alkynyl, C_1 - C_{18} alkoxy, $(CH_2)_pO(CH_2)_q$ and $(CH_2)_pNH(CH_2)_q$;

R_{29} is H, halo or C_1 - C_{10} alkyl;

20 R_{17} is selected from the group consisting of H, halo, NH_2 , C_1 - C_6 alkyl, C_1 - C_6 alkoxy, C_1 - C_6 alkylamino, C_1 - C_6 alkylcyano and C_1 - C_6 alkylthio;

R_2 , and R_{21} are both NH_2 ;

R_3 is selected from the group consisting of H, C_1 - C_6 alkyl, $(C_1$ - C_4 alkyl)OH, and $(C_1$ - C_4 alkyl)NH₂;

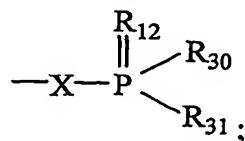
R_{22} is selected from the group consisting of C_1 - C_6 alkyl, $(C_1$ - C_4 alkyl)OH and $(C_1$ - C_4 alkyl)NH₂;

5 R_{24} is selected from the group consisting of H, F and PO_3H_2 , or R_{23} together with R_{24} and the carbon to which they are attached form a carbonyl group;

R_{25} , R_7 and R_8 are independently selected from the group consisting of O, S, CHR_{26} , CHR_{26} , NR_{26} , and N;

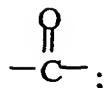
wherein R_{26} is H, F or C_1 - C_4 alkyl;

10 R_{15} is represented by the structure

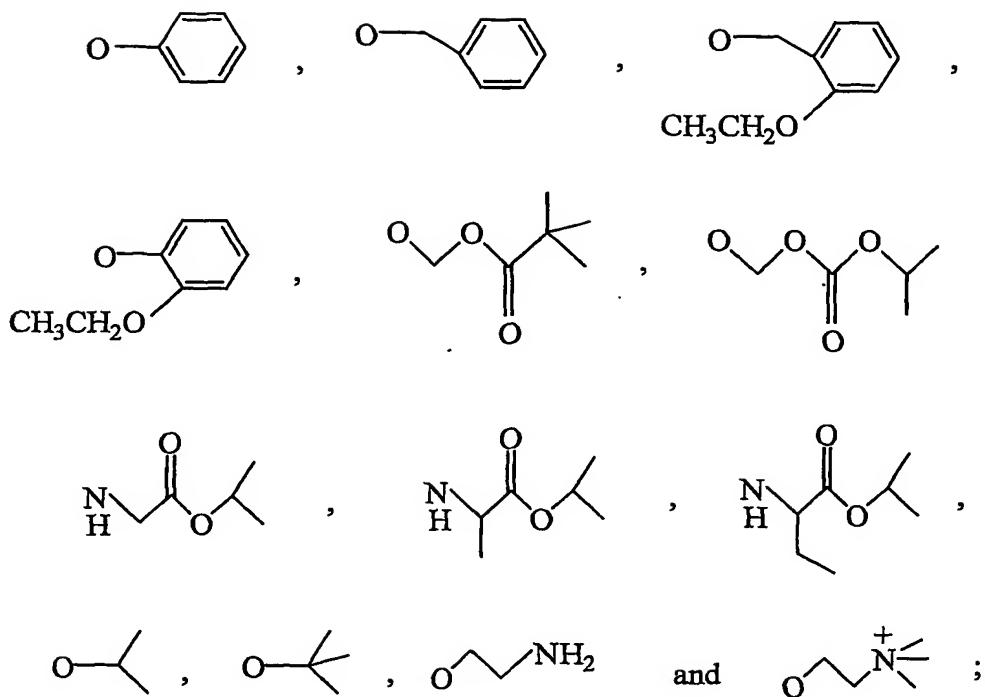


wherein R_{12} is selected from the group consisting of O and S;

X is selected from the group consisting of O, S, CH_2 , $CHOH$, CHF , CF_2 , and



15 R_{30} and R_{31} are independently selected from the group consisting of C_1 - C_2 alkoxy,



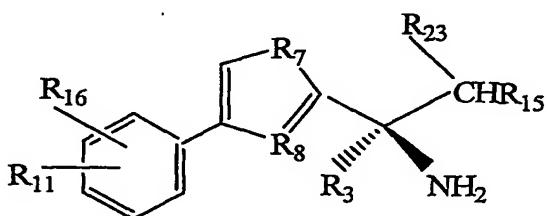
y and m are integers independently ranging from 0 to 4;

n is an integer ranging from 0 to 10;

or a pharmaceutically acceptable salt or tautomer thereof, with the proviso that W and

5 Y are not both methyl.

41. The method of claim 40 wherein the administered composition comprises a compound represented by the formula:



10 wherein

R_{11} is selected from the group consisting of $\text{C}_5\text{-C}_{18}$ alkyl, $\text{C}_5\text{-C}_{18}$ alkenyl, $\text{C}_5\text{-C}_{18}$ alkynyl, $\text{C}_5\text{-C}_{18}$ alkoxy and $(\text{CH}_2)_p\text{O}(\text{CH}_2)_q$;

wherein p and q are integers independently ranging from 1 to 10;

R_{16} is selected from the group consisting of H, $\text{C}_1\text{-C}_{10}$ alkyl,

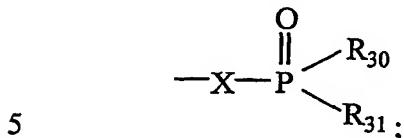
15 $\text{C}_2\text{-C}_{10}$ alkenyl and $\text{C}_2\text{-C}_{10}$ alkynyl;

R_3 is selected from the group consisting of $\text{C}_1\text{-C}_4$ alkyl and $(\text{C}_1\text{-C}_4$ alkyl) OH ;

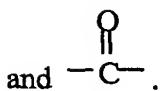
R₇ and R₈ are independently selected from the group consisting of O, S, CR₂₆, CHR₂₆, NH and N;

R₂₃ and R₂₆ are independently H or F; and

R₁₅ is represented by the structure

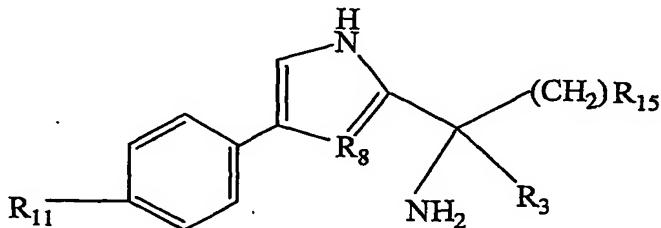


wherein X is selected from the group consisting of O, CH₂, CHOH, CHF, CF₂



42. The method of claim 41 further comprising the step of administering a
10 second immuno-modulatory agent selected from the group consisting of cyclosporine, tacrolimus, rapamycin, azathioprine, and corticosteroids such as prednisolone and prednisone.

43. The method of claim 42 wherein the compound has the general
15 formula:

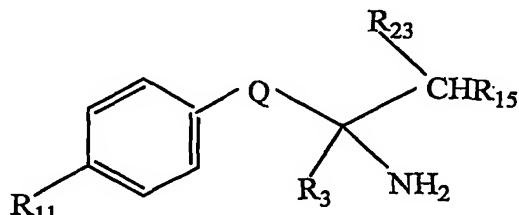


wherein R₁₁ is selected from the group consisting of C₁-C₂₂ alkyl, C₂-C₂₂ alkenyl and C₂-C₂₂ alkynyl;

20 R₃ is selected from the group consisting of C₁-C₆ alkyl, -(C₁-C₄ alkyl)OH, and -(C₁-C₄ alkyl)NH₂;

R₈ is selected from the group consisting of O, S and N.

44. A method of promoting wound healing in a warm blooded vertebrate, said method comprising the step of administering a composition comprising a compound of the general structure:



5

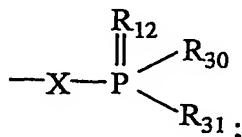
wherein R₁₁ is C₅-C₁₈ alkyl or C₅-C₁₈ alkenyl;

Q is selected from the group consisting of C₃-C₆ optionally substituted cycloalkyl, C₃-C₆ optionally substituted heterocyclic, C₃-C₆ optionally substituted aryl, C₃-C₆ optionally substituted heteroaryl and -NH(CO)-;

10 R₃ is selected from the group consisting of H, C₁-C₄ alkyl and (C₁-C₄ alkyl)OH;

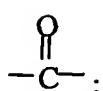
R₂₃ is H or C₁-C₄ alkyl, and

R₁₅ is represented by the structure

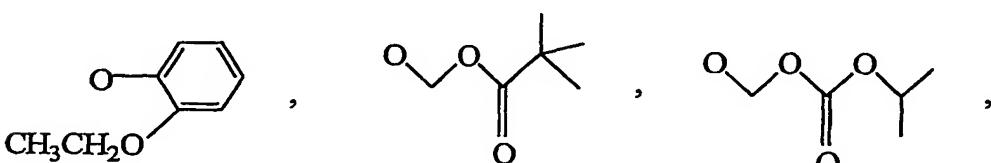
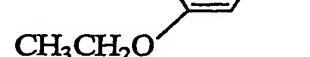
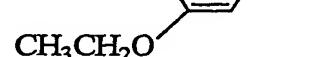
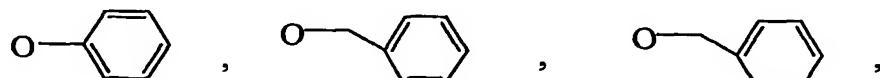


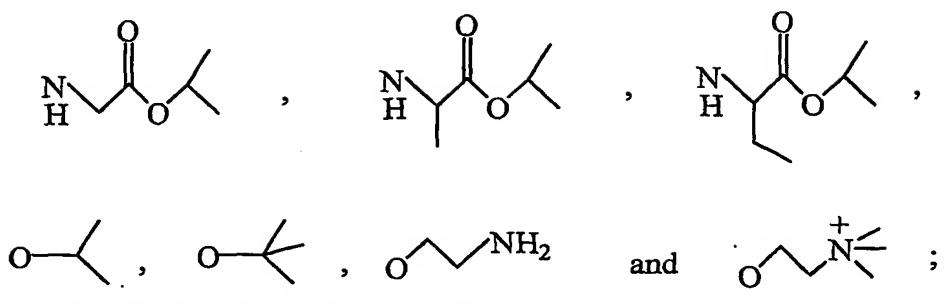
wherein R₁₂ is selected from the group consisting of O and S;

15 X is selected from the group consisting of O, S, CH₂, CHO, CHF, CF₂, and



R₃₀ and R₃₁ are independently selected from the group consisting of C₁-C₂ alkoxy,

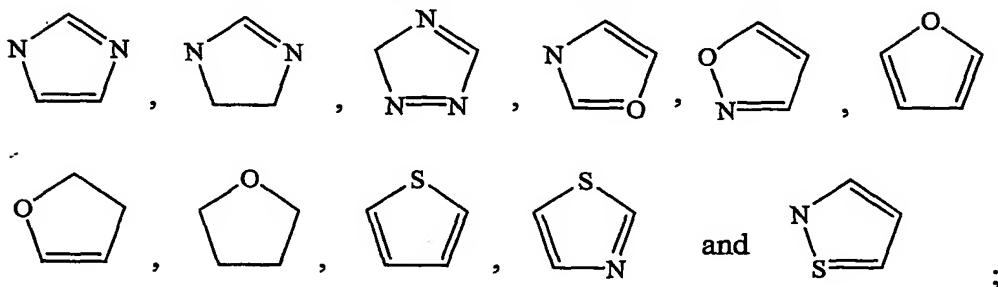




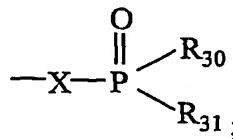
or a pharmaceutically acceptable salt or tautomer thereof.

45. The method of claim 44 wherein

5 Q is selected from the group consisting of $-\text{NH}(\text{CO})-$,

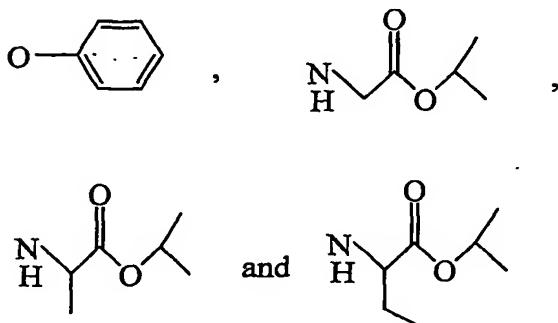


and R_{15} is represented by the structure



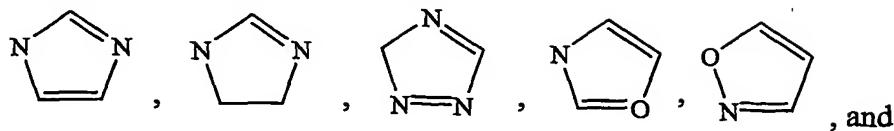
wherein X is selected from the group consisting of O, CH_2 , CHOH and CHF ;

10 R_{30} and R_{31} are independently selected from the group consisting of $\text{C}_1\text{-C}_2$ alkoxy,



46. The method of claim 45 wherein

Q is selected from the group consisting of

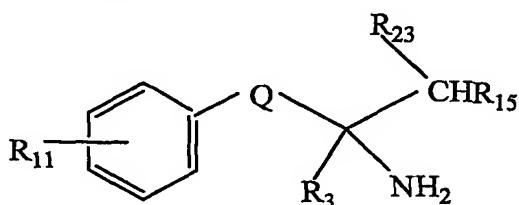


, and
R₁₅ is OH;

or a pharmaceutically acceptable salt or tautomer thereof.

5

47. A method for treating a patient suffering from a disease associated with abnormal cell growth, said method comprising the steps of administering a compound of the general structure:



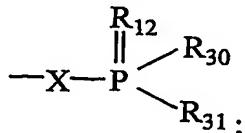
10 wherein R₁₁ is located in the meta or para position and is selected from the group consisting of C₅-C₁₈ alkyl and C₅-C₁₈ alkenyl;

Q is selected from the group consisting of C₃-C₆ optionally substituted cycloalkyl, C₃-C₆ optionally substituted heterocyclic, C₃-C₆ optionally substituted aryl C₃-C₆ optionally substituted heteroaryl and -NH(CO)-;

15 R₃ is selected from the group consisting of H, C₁-C₄ alkyl and (C₁-C₄ alkyl)OH;

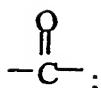
R₂₃ is H or C₁-C₄ alkyl, and

R₁₅ is represented by the structure

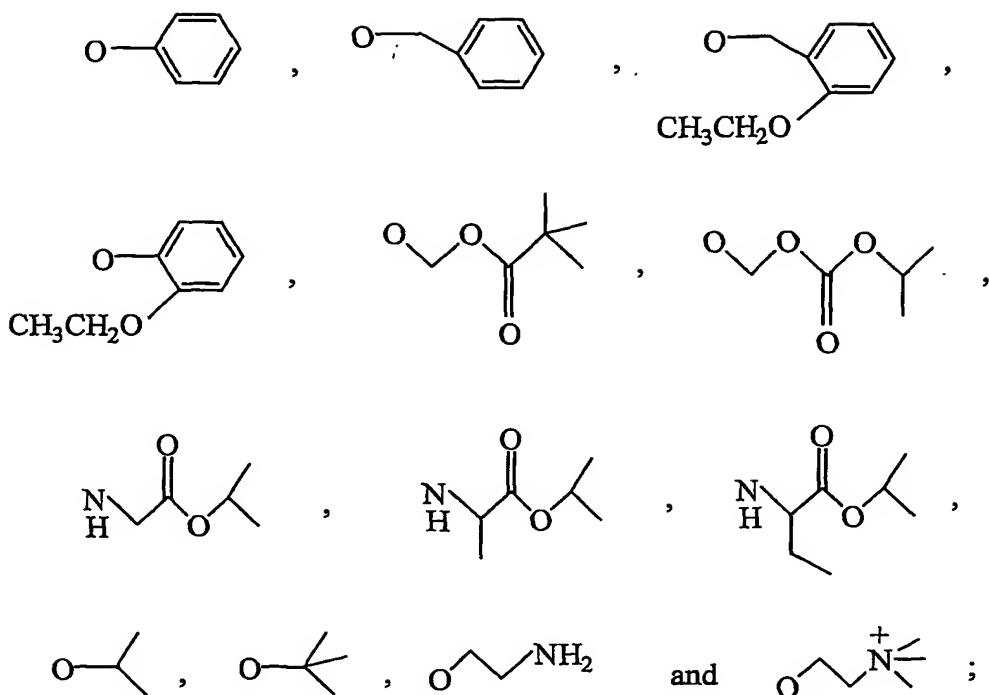


20 wherein R₁₂ is selected from the group consisting of O and S;

X is selected from the group consisting of O, S, CH₂, CHO_H, CHF, CF₂, and



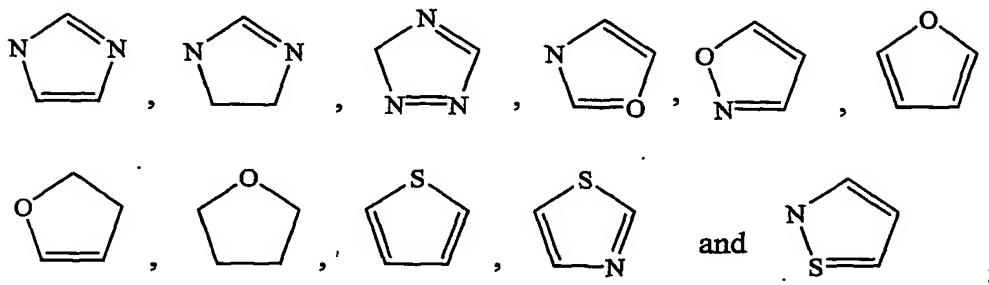
R₃₀ and R₃₁ are independently selected from the group consisting of C₁-C₂ alkoxy,



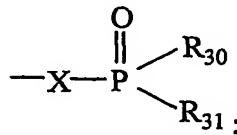
or a pharmaceutically acceptable salt or tautomer thereof.

48. The method of claim 47 wherein

5 Q is selected from the group consisting of -NH(CO)-;

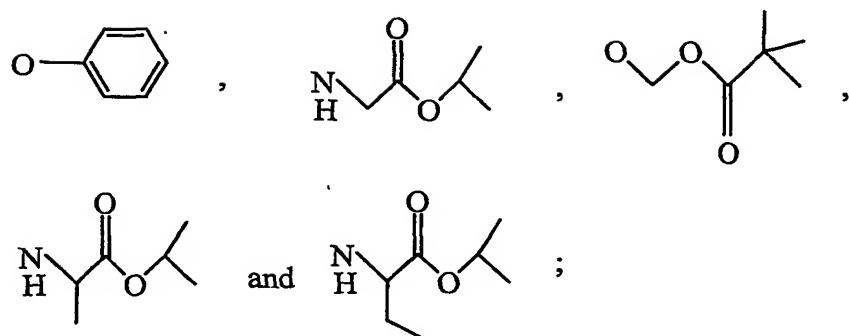


and R_{15} is represented by the structure



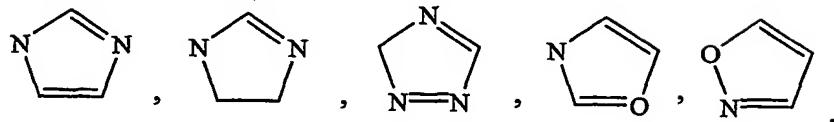
wherein X is selected from the group consisting of O, CH₂, CHOH and CHF;

10 R₃₀ and R₃₁ are independently selected from the group consisting of C₁-C₂ alkoxy,



wherein R₁₂ is O or S.

49. The method of claim 48 wherein
5 Q is selected from the group consisting of



or a pharmaceutically acceptable salt or tautomer thereof.